

ON THE PROVISION OF ISOLATION HOSPITAL ACCOMMODATION BY LOCAL AUTHORITIES.

This memorandum is designed to represent to those who are responsible for the health of communities the importance of providing hospital accommodation for the isolation of cases of infectious disease, and of doing so before the actual invasion of their districts by such disease. It is further intended to indicate to local authorities, more especially to those of districts of small or moderate size, the means by which they may most advantageously make such provision. Some general principles to be held in view by all authorities who propose to provide, by means of loans sanctioned by the Minister of Health, isolation hospitals for their districts will be set forth in the course of the memorandum.

The provision of hospital accommodation for cases of infectious diseases is to be regarded primarily as a measure of sanitary defence, for the protection of the public against the spread of these diseases. It is true that such accommodation incidentally serves other useful purposes. Thus, it is frequently of value for the relief of individuals suffering from infectious disease, whose sufferings may be alleviated and their recovery promoted by affording them better accommodation and attendance than they are able to obtain at their own homes. Or it may be the means of avoiding serious inconvenience and pecuniary loss, as when infectious disease breaks out in a school, a lodging house, or a place of business. But, nevertheless, the most important function which such a hospital serves is that of the isolation of the first cases of infectious disease with a view to preventing its further spread in the household or locality invaded.

In order that a hospital may fulfil this function, it is essential that it should be in readiness beforehand. Experience has shown that on the invasion of an epidemic, a hospital, even of a temporary kind, can seldom be provided and got ready for use until the time when it would have been of most service is past. The accommodation, moreover, which is required when an epidemic has become established is on a larger scale than would have sufficed for the isolation of the first cases; and hospitals hurriedly erected during the stress of an epidemic are never satisfactory in construction or suited to the permanent needs of the district.

An isolation hospital being intended primarily for the protection of the public at large rather than for the benefit of individuals, it is undesirable that admission should be subject to restrictive charges and conditions which may tend to prevent the use of the hospital by the poorer portion of the community; that is to say, by those who have the least facilities for isolation and treatment at their own homes.

In some districts, however, *e.g.*, at health resorts, it may be advisable to provide special accommodation of a superior kind, such as private wards, for persons willing to pay for it.

Area to be served by a Hospital.—The extent of the area which an isolation hospital may serve will depend in some degree upon considerations of local topography. The unnecessary multiplication of small hospitals is to be avoided on grounds both of economy and of efficiency. As compared with that of several smaller hospitals, the establishment of a single hospital containing an equal number of beds saves the cost of duplicating various buildings, appliances, and officers; it facilitates the classification of patients according to the diseases from which they are suffering; and it enables a more efficient staff to be maintained, since the hospital is less likely to remain empty for considerable periods. Hence, where districts are not very large or populous, combination for the purpose of providing hospital accommodation is often of advantage. In the less densely populated parts of the country, a market town with the surrounding rural district, or the several sanitary districts comprised in one poor law union, may form a convenient area for the purpose of combined hospital provision. A hospital intended solely for small-pox may often with advantage serve a larger area than a hospital for other infectious diseases. The modes by which local authorities may combine for the provision of hospitals are set forth in an office memorandum on "Isolation Hospitals," which may be obtained on application, for the guidance of local authorities desirous of such combination or of establishing hospitals under the sanction of the Minister of Health.

Size of Hospital in proportion to population.—The amount of permanent isolation hospital accommodation which should be provided in proportion to the population will depend upon various considerations, among the most important of which are the character of the district, whether urban or rural; the rate of increase of population; the housing and the habits of the people; and the amount of intercourse with other places from which infectious disease may be introduced. As a rough estimate, one bed for every thousand inhabitants is sometimes adopted, but in view of the diverse circumstances of different districts this cannot be regarded as a definite standard. Moreover, the sufficiency of the hospital accommodation will depend not merely upon the aggregate number of beds, but also upon the way in which they are arranged in wards. In a single block with wards connected together only one disease can safely be treated at a time; and thus, at a hospital containing only one such block, occasions may arise when, owing to the hospital being partly occupied by one disease, a case of a second disease requiring isolation cannot safely be taken in, although there may be a number of beds empty at the time.

It is common to find that the demand for hospital accommodation, when people have come to appreciate the benefits of its use, increases far beyond what was at first anticipated; and for this reason, as well as to allow for growth of the population and for the possible need for temporary extensions during epidemics, it is well at the outset to provide for the contingency of future enlargement.



Site.—In selecting a site for an isolation hospital the following considerations should be had in view. It should be convenient of access, and, as far as practicable, central for the population and area which it is to serve ; but of course not in a very populous neighbourhood. (In the case of hospitals in which small-pox is intended to be received the choice of site must be specially governed by considerations as to the number of inhabitants in the neighbourhood, which will be referred to later on.) It will be of much convenience if sewers and a public water service are available ; but, if not, a sufficient supply of wholesome water must be provided, and adequate arrangements will have to be made for the treatment of the sewage, due care being taken to avoid pollution of any well or spring or of any river. The site should be in a healthy and open situation with a dry subsoil, and should be preferably of a compact and regular shape, and not too steep. Its area will depend upon the size of the hospital, and, except in the case of a very small hospital, should rarely be less than two acres ; indeed it is well to obtain a larger site than may at first be required, in order to afford space for subsequent extension if necessary. More land, too, will be needed if the sewage has to be disposed of on the site. *The site, or so much of it as is to form the grounds of the hospital, should be enclosed by a wall or close fence at least 6 feet 6 inches in height, and every building which is to contain infected persons or things should be at least 40 feet distant from the boundary.**

Hospital buildings.—These should be of three classes, viz., 1st, ward-blocks for the reception of the sick ; 2nd, administration-block for the housing of the staff and stores ; and 3rd, out-offices, as laundry and mortuary. In hospitals for permanent use these buildings should be of brick or stone. Temporary buildings, as, for instance, buildings constructed of wood or corrugated iron, are ill-suited for permanent use as hospitals, for the reason that it is difficult to maintain them at a proper temperature during extremes of hot and cold weather ; moreover, they are less durable than brick or stone buildings, requiring more frequent repairs in order to keep them in a properly weather-proof condition, and they are liable to be destroyed by fire and storm. *It is not the practice of the Minister of Health in ordinary cases to sanction loans for iron hospitals or for hospital buildings of temporary character.*

Existing buildings originally designed for a different purpose, such as dwelling houses, even when of large size, are rarely found to be well adapted for the reception of patients ; especially for the accommodation at one time of patients suffering from different infectious diseases. An existing house, however, may sometimes serve as the

* If desired, an open unclimbable railing may be substituted for a wall or close fence for so much of the boundary as is within supervision and control from the administration block or porter's lodge, as between the points X-X on the annexed block plan A, but in that case a second line of unclimbable fence should be constructed within the first, as indicated on the plan. In very unfrequented situations a stout hedge or shrubbery between two rows of barbed wire fencing or unclimbable iron railing may sometimes suffice in place of a wall or close fence.

administration-block, if it has sufficient land attached on which to erect ward-blocks.

The *administration-block*, which should be kept free from patients and infected articles, should be so placed as to control the entrance to the hospital grounds, unless a porter's lodge is intended to be erected. It should contain quarters for the matron or caretaker, and a sufficient number of bedrooms for the nurses and servants who will be required to work the hospital when in full operation; also a nurses' sitting-room; a kitchen (preferably in a one-storey projection with top ventilation), store-rooms, dispensary, &c. In hospitals of considerable size quarters for a resident medical officer will also be necessary. It is well to provide in the administration-block accommodation on a scale somewhat in excess of what may be at first required, in order that it may be available for future extensions of the hospital, temporary or permanent; but in any case the block should be so planned that it can be easily enlarged in the future if necessary.

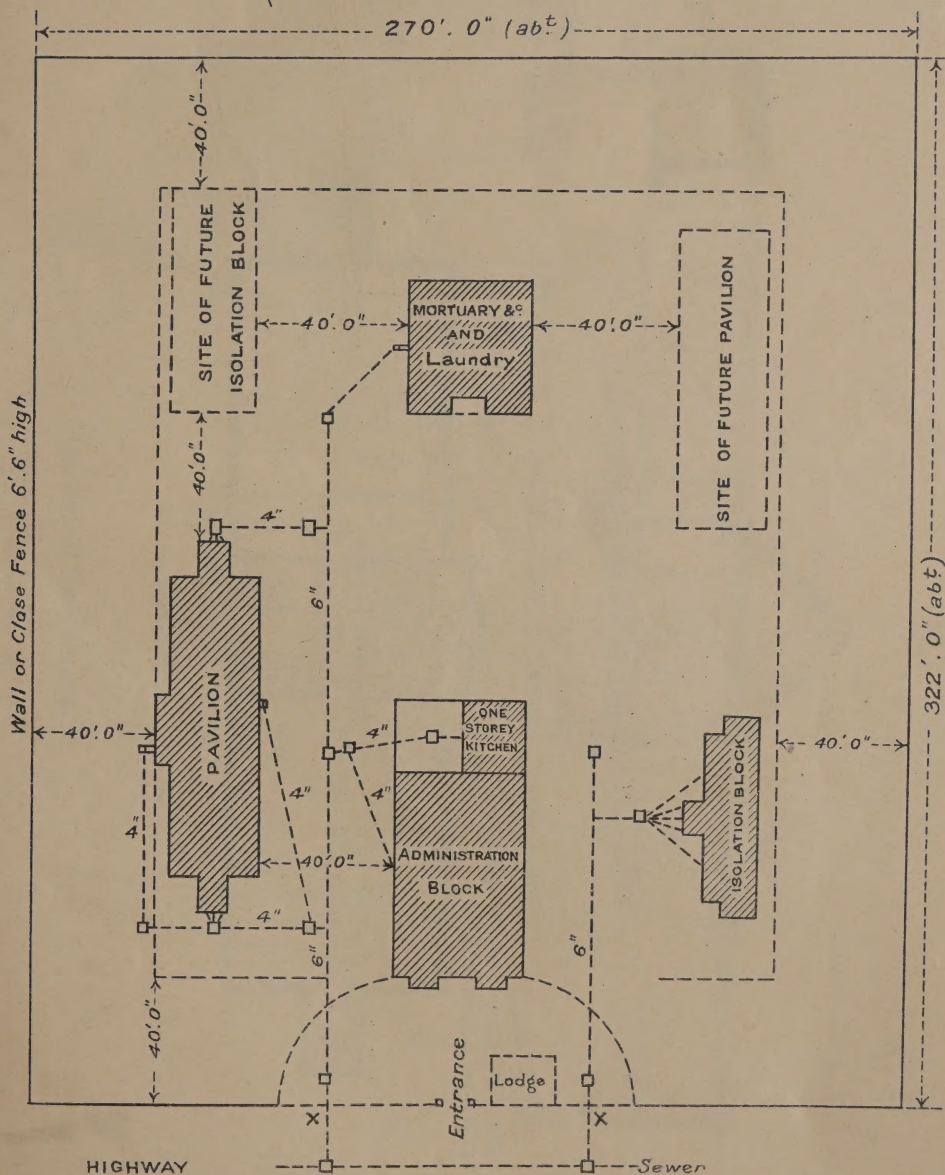
The *ward-blocks* should be one-storey buildings, unless where in exceptional cases or at large hospitals exigencies of space may render it necessary to construct blocks of two storeys; in such case each storey should have a separate entrance from the open air. The annexed plans illustrate two different types of ward-block suitable for small or moderate sized hospitals. The type illustrated in plan B is the more advantageous, as regard both cost of construction and convenience of administration, where a number of patients of both sexes suffering from the same disease have to be treated at one time. The number of beds in each ward will vary with the requirements of the district, and it is usually found desirable to make one ward rather larger than the other, as indicated on the plan, in order that young children of both sexes may be treated in the women's ward. The space in the centre of the block over the nurses' duty room and entrance-hall (the height of which need not be so great as that of the wards) is sometimes utilised as a day-room for convalescent patients.

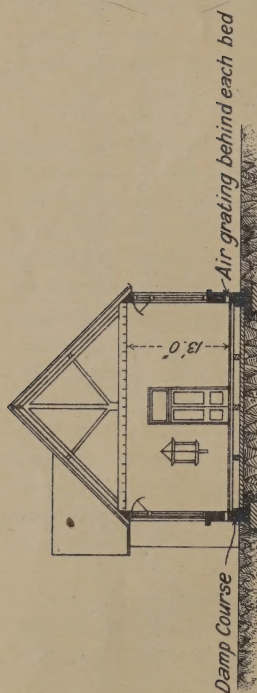
Single-bed wards in connection with a block of the type of plan B are sometimes found useful for the segregation of a case of the same disease as that treated at the same time in the main wards, but small wards so situated cannot be safely used for patients with a different disease, or for cases of which the nature is still doubtful. A convenient position for such single-bed wards is indicated on the plan.

Plan C shows an Observation (Cubicle) Block intended to provide isolation accommodation for single cases of infectious diseases other than smallpox, for cases of mixed infection, or for cases of doubtful diagnosis. This block is arranged in such a way that one nurse may, assuming that rigid precautions are taken, attend to more than one such case. The plan indicates a floor space of 12 feet by 12 feet, but the Department are prepared to accept a floor space of 12 feet by 10 feet.

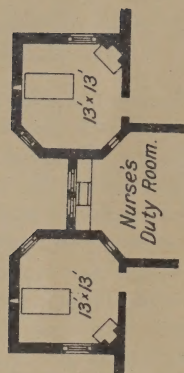
For very large hospitals other types of ward may be found of advantage.

A.

BLOCK PLAN.



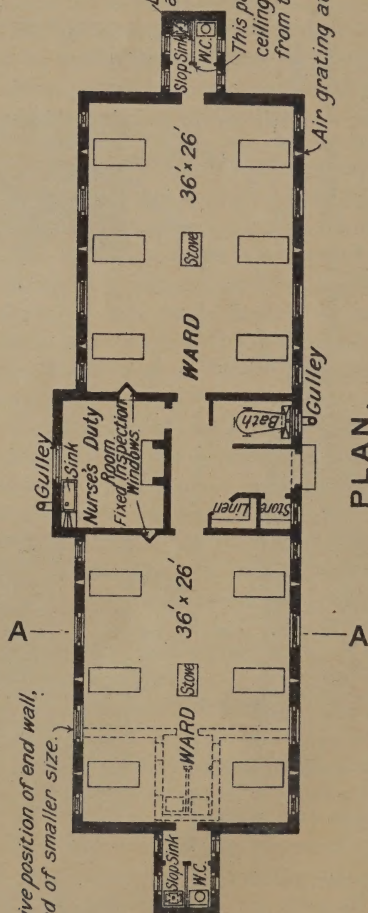
SECTION A.A.



ALTERNATIVE PLAN.

SHEWING 2 SEPARATION WARDS.

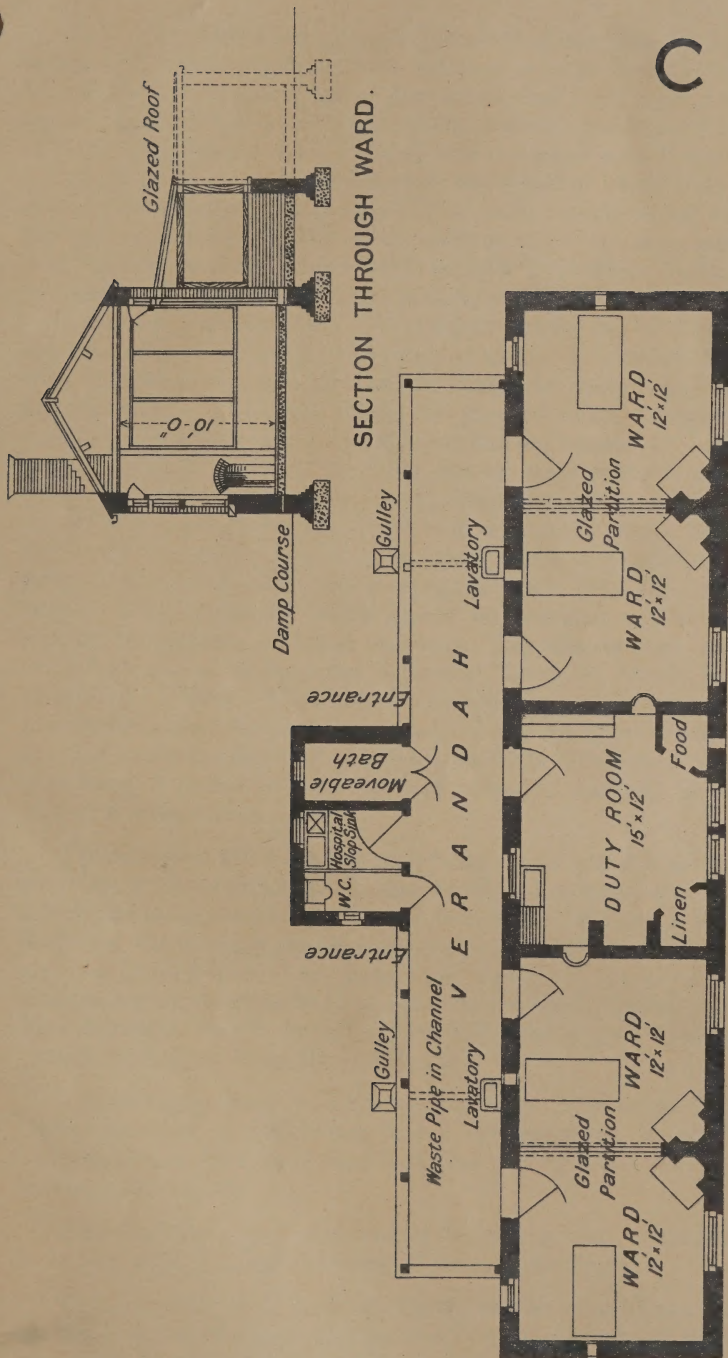
Alternative position of end wall,
&c., if ward of smaller size.



PLAN.

Scale. 24 Feet to One Inch.

B



PLAN.

Scale. 12 Feet = 1 Inch.

In the ward-blocks (except cubicle-blocks) of hospitals for infectious diseases other than small-pox, each bed must have at least 12 linear feet of wall space, 144 square feet of floor space, and 1,872 cubic feet of air space. In the case of small-pox hospitals, however, a minimum air space of 2,000 cubic feet per bed is required, and this space must be obtained by increasing the floor space per bed, since any height of wards above 13 feet should not be taken into account.* The walls should be of adequate thickness; and the inner face of the walls as well as the floors and wood-work should be constructed with smooth impervious surfaces and rounded angles, so as to facilitate cleanliness and to avoid spaces which may harbour dust and dirt. Ventilation should be by windows on opposite sides of the ward; the windows should be double-hung sashes with fanlight above, and the fanlight should be made to fall inwards, hopper-fashion, with side cheeks to prevent down draughts. The area of the windows should be sufficient but not excessive; one square foot of window to every 70 cubic feet of ward space is a suitable proportion. The best aspect for the ward-blocks is usually with the windows facing respectively south-east and north-west. The wards should have adequate means of warming, which may with advantage be so contrived as to furnish a supply of warm fresh air. An ample supply of hot water for baths should be provided, and bath-rooms should be capable of being warmed. The closets and slop-sinks should be placed in annexes separated from the wards by cross-ventilated lobbies. The closets should be water-closets where practicable; and the slop-sinks should be of an appropriate pattern adapted to receive the solid and liquid contents of bed-pans, the waste-pipe being 3 inches in diameter and arranged similarly to the soil-pipe of a water-closet.

The *out-offices* will comprise such buildings as laundry, disinfecting-chamber, mortuary and ambulance-shed; and in large establishments a boiler-house and engine-house may be needed. Except in very small hospitals, the laundry should comprise a wash-house, a drying-closet, and an ironing-room. An apparatus should be provided for the disinfection by steam of bedding and articles which cannot be washed. The mortuary should be in a cool and unobtrusive position, and should be lighted from the north only.

A discharging-block is not infrequently provided, consisting of an undressing-room, a bath-room, and a dressing-room, in which convalescents may take their final bath and put on clean clothes before leaving the hospital.

Each building which is to contain infected persons or things should be at least 40 feet distant from any of the other buildings.

The annexed block plan A illustrates the arrangement upon a rectangular site of about 2 acres of a hospital containing 16 beds, in two ward-blocks with administration-block and out-offices; space being also reserved for future extensions. The best arrangement of

* Smaller dimensions are permitted in the case of the wards of cubicle-blocks (Plan C) in view of the total separation of individual patients.

the buildings will, however, in practice largely depend upon the shape and contour of the site.

If, owing to the bleakness of the site, it is considered desirable that the several blocks should be connected by covered ways, these should not be enclosed, but should be open at the sides. A screen for protection against wind and driving rain may be provided if desired.

Hospitals for Small-pox.—In view of the frequently demonstrated liability of small-pox hospitals to disseminate that disease to neighbouring communities, and in order to lessen the risk of such occurrence, the Department require the following conditions to be complied with in the case of small-pox hospitals provided by means of loans sanctioned by them :—

1st. *The site must not have within a quarter of a mile of it either a hospital, whether for infectious diseases or not, or a Poor Law institution, asylum, or any similar establishment, or a population of as many as 200 persons.*

2nd. *The site must not have within half a mile of it a population of as many as 600 persons, whether in one or more institutions, or in dwelling-houses.*

3rd. *Even where the above conditions are fulfilled, a hospital must not be used at one and the same time for the reception of cases of small-pox and of any other class of disease.*

Ministry of Health,

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